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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,066	01/31/2002	Ravi Prakash	CHA920010019US1	2667

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EXAMINER	
PERUNGAVOOR, SATHYANARAYA V	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,066	PRAKASH, RAVI	
	Examiner	Art Unit	
	Sath V. Perungavoor	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7,10-13,16-18 and 21* is/are rejected.

7)☐ Claim(s) *2, 3, 8, 9, 14, 15, 19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

[1] The response filed on January 06, 2005 has been entered and made of record.

Response to Arguments

[2] Applicant's arguments filed January 06, 2005 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 112

Summary of Arguments:

Best mode rejection of claims 5, 11, 13 and 18 are improper [Remarks: Page 7].

Examiner's Response:

Agreed. Examiner withdraws the rejection.

Prior Art Rejections

Summary of Arguments:

Regarding claims 1 and 7: Applicant alleges that Tabata does not disclose, "rotating an intermediate reduced image in a direction opposite a first direction" [Remarks: Page 8].

Examiner's Response:

Examiner respectfully disagrees. Tabata discloses rotational scaling in the clockwise and counter clockwise direction [Tabata: Column 1 Lines 60-62]. Accordingly, rotation of an intermediate reduced image would be expected from consecutive application of Tabata's method.

Summary of Arguments:

Regarding claims 12 and 17: Applicant alleges that Anderson does not disclose "a two step process of pixel reduction including a first step of removing pixel in each row, and a second step of removing pixel in each row" [Remarks: Page 9]. Applicant also alleges that is no teaching to modify Anderson with "weighted sums to reduce pixels in row" [Remarks: Page 10].

Examiner's Response:

Examiner respectfully disagrees. It would be obvious to apply the two axes (row and column) method of Anderson to simply rows, since reduction can be carried on any number of axes. Anderson also discloses modification of the output pixel based on the weights of the input neighboring pixels [Anderson: Column 7 Lines 8-20]. This provides the reasoning for combinability of Anderson and Andrews.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[3] Claims 1, 4, 7 an 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. (US 4,618,991) in view of Andrews, Brown, Caldwell and Wheeler here after referred to as Andrews (NPL, see PTO-892).

Regarding claim 1, Tabata et al. discloses a system with a rotation algorithm for rotating the image in the first direction, rotating the image in the opposite direction to the first direction and scaling to generate a reduced image (Col. 4 Lines 8-42).

However, Tabata et al. does not disclose the rotation algorithm using the weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values.

Andrews discloses a rotation algorithm using the weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values (Page 19-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teaching of Tabata et al. with Andrews to create system for image scaling by rotation using the weighted sums. All intensity values for all pixels cannot be know when one performs rotation, weighted interpolation is need to determine the intensity values for these pixels. Since interpolation can be performed after each rotation, one would be motivated to do so in order to generate an image of intermediate resolution.

Regarding claim 4, Andrews discloses the system of claim 1, wherein an amount of size reduction is proportional to an amount of rotation implemented by the rotation algorithm (Eq. 1).

Regarding claim 7, Tabata et al. discloses a program with a rotation algorithm for rotating the image in the first direction, rotating the image in the opposite direction to the first direction and scaling to generate a reduced image (Col. 4 Lines 8-42; Col. 5 Lines 8-11).

However, Tabata et al. does not disclose the rotation algorithm using the weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values.

Andrews discloses a rotation algorithm using the weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values (Page 19-21).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teaching of Tabata et al. with Andrews to create a program for image scaling by rotation using the weighted sums. All intensity values for all pixels cannot be know when one performs rotation, weighted interpolation is need to determine the intensity values for these pixels. Since interpolation can be performed after each rotation, one would be motivated to do so in order to generate an image of intermediate resolution.

Regarding claim 10, Andrews discloses the program product of claim 7, wherein an amount of size reduction is proportional to an amount of rotation (Eq. 1).

[4] Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. in view of Andrews as applied to claims 1 and 7 respectively above, and further in view of Takaoka et al. (US 6,295,385).

Regarding claim 5, Tabata et al. and Andrews meet the claim limitations as set forth by claim 1.

However, neither Tabata et al. nor Andrews disclose an enhancement system to boost a dynamic range of the image after the second reduction.

Takaoka et al. discloses an enhancement system to boost a dynamic range of the image (Col. 5 Lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Tabata et al. and Andrews with Takaoka et al. to create an enhancement system, since the image reduction process will reduce the quality of image and enhancement would improve the contrast features.

Regarding claim 11, Tabata et al. and Andrews meet the claim limitations as set forth by claim 7.

However, neither Tabata et al. nor Andrews disclose an enhancement means to boost a dynamic range of the image of the final reduced image.

Takaoka et al. discloses an enhancement means to boost a dynamic range of the image of the final reduced image (Col. 5 Lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Tabata et al. and Andrews with Takaoka et al. to create an enhancement means, since the image reduction process will reduce the quality of image and enhancement would improve the contrast features.

[5] Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. in view of Andrews as applied to claim 1 above, and further in view of Bergeron et al. (US 6,549,683).

Tabata et al. and Andrews meet the claim limitations as set forth by claim 1.

However, neither Tabata et al. nor Andrews disclose the final reduced image having the total pixels that is a multiple of eight.

Bergeron et al. discloses the final reduced image having the total pixels that is a multiple of eight (Col. 6 Lines 52-65).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Tabata et al. and Andrews with Bergeron et al. to create an final image with total pixels being a multiple of eight. Since, any resolution for the image can be picked, one would pick the widely used and optimal resolution.

[6] Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 4,656,664) in view of Andrews.

Regarding claim 12, Anderson et al. discloses the method of generating an intermediate and final reduced image from the original image (Fig. 1).

However, Anderson does not disclose the pixel values being calculated based on weighted sums of neighboring pixels.

Andrews discloses the pixel values being calculated based on weighted sums of neighboring pixels (Pages 19-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teaching of Anderson et al. with Andrews to create a method for image scaling using the weighted sums. One performs weighted interpolation to determine the intensity values for pixels and minimize effects of artifacts.

Regarding claim 17, Anderson et al. discloses the system of generating an intermediate and final reduced image from the original image (Fig. 1).

However, Anderson does not disclose the pixel values being calculated based on weighted sums of neighboring pixels.

Andrews discloses the pixel values being calculated based on weighted sums of neighboring pixels (Pages 19-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teaching of Anderson et al. with Andrews to create a system for image scaling using the weighted sums. One performs weighted interpolation to determine the intensity values for pixels and minimize effects of artifacts.

[7] Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. in view of Andrews as applied to claim 12 and 17 respectively above, and further in view of Takaoka et al.

Regarding claim 13, Anderson et al. and Andrews meet the claim limitations as set forth by claim 12.

However, neither Anderson et al. nor Andrews disclose an enhancement means to boost a dynamic range of the image of the final reduced image.

Takaoka et al. discloses an enhancement means to boost a dynamic range of the image of the final reduced image (Col. 5 Lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Anderson et al. and Andrews with Takaoka et al. to create an enhancement means, since the image reduction process will reduce the quality of image and enhancement would improve the contrast features.

Regarding claim 18, Anderson et al. and Andrews meet the claim limitations as set forth by claim 17.

However, neither Anderson et al. nor Andrews disclose an enhancement means to boost a dynamic range of the image of the final reduced image.

Takaoka et al. discloses an enhancement means to boost a dynamic range of the image of the final reduced image (Col. 5 Lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Anderson et al. and Andrews with Takaoka et al. to create an enhancement system, since the image reduction process will reduce the quality of image and enhancement would improve the contrast features.

[8] Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. in view of Andrews as applied to claim 12 and 17 respectively above, and further in view of Bergeron et al.

Regarding claim 16, Anderson et al. and Andrews meet the claim limitations as set forth by claim 12.

However, neither Anderson et al. nor Andrews disclose the intermediate reduced image having the total pixels that is a multiple of eight.

Bergeron et al. discloses the reduced image having the total pixels that is a multiple of eight (Col. 6 Lines 52-65).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Anderson et al. and Andrews with Bergeron et al. to create an intermediate reduced image with total pixels being a multiple of eight. Since, any resolution for the image can be picked, one would pick the widely used and optimal resolution.

Regarding claim 21, Anderson et al. and Andrews meet the claim limitations as set forth by claim 17.

However, neither Anderson et al. nor Andrews disclose the final reduced image having the total pixels that is a multiple of eight.

Bergeron et al. discloses the final reduced image having the total pixels that is a multiple of eight (Col. 6 Lines 52-65).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings Anderson et al. and Andrews with Bergeron et al. to create a final reduced image with total pixels being a multiple of eight. Since, any resolution for the image can be picked, one would pick the widely used and optimal resolution.

Allowable Subject Matter

[9] Claims 2, 3, 8, 9, 14, 15, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Prior Art Cited

[10] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Williams et al. (US 5,579,418) disclose an interpolation method with image rotation.

Levien (6,097,855) discloses an image rotation method.

Conclusion

[11] **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

[12] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sath V. Perungavoor
Art Unit 2625
April 18, 2005

MEHRDAD DASTOURI
PRIMARY EXAMINER